

Title (en)

A method and a device for the manufacture of a lightweight structure, and also a lightweight structure

Title (de)

Verfahren und Vorrichtung zur Herstellung einer Leichtbaustruktur, und Leichtbaustruktur

Title (fr)

Procédé et dispositif pour la fabrication d'une structure légère ainsi que ladite structure de construction légère

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Application

EP 13172082 A 20130614

Priority

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Abstract (en)

[origin: EP2674290A1] The invention concerns a method for the manufacture of an integrally reinforced lightweight structure 10 with a fibre-reinforced plastic, in particular of a fuselage barrel or a shell component of an aircraft, by means of a moulding tool 32, wherein the lightweight structure 10 has a multiplicity of stiffening ribs 14-18 crossing one another at node points 22, 24, 70, 78, 90-96, wherein a skin 28 is attached to the stiffening ribs 14-18, and the moulding tool 32 has a multiplicity of channel-type depressions 36 for purposes of creating the stiffening ribs 14-18, comprising the following steps: a) laying down in at least some regions of at least one intermediate layer 54, 98, 100 and at least one reinforcement layer 50 into the depressions 36, b) repetition of step a) until the depressions 36 are at least partially filled with intermediate layers 54, 98, 100 and reinforcement layers 50 for purposes of forming the stiffening ribs 14-18 with integral connecting feet 60, 62, 106-112, c) population of the moulding tool 32, in particular with intermediate layers 54, 98, 100 and/or reinforcement layers 50, for purposes of manufacturing the skin 28, and d) curing and/or solidification of the intermediate layers 54, 98, 100 and reinforcement layers 50. In addition the invention concerns a lightweight structure and a device 200 for the manufacture of the same.

IPC 8 full level

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Citation (examination)

- DE 3739753 A1 19890608 - DORNIER GMBH [DE]
- WO 2012045871 A1 20120412 - AIRBUS OPERATIONS GMBH [DE], et al
- US 6050315 A 20000418 - DECKERS MARK E [US], et al

Cited by

RU176806U1; EP3278966A1; EP3018051A1; EP3109152A1; US9988136B2; US10689087B2; US10981641B2; US11634206B2

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